

REMARKS

Claims 1-7, 9-20, and 22-25 are pending in the present application. Claims 8 and 21 have been canceled. Claims 1 and 16 are independent.

Provisional Double Patenting Rejection

Claims 1-25 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-23 of co-pending application no. 09/777,786. This rejection, insofar as it pertains to the presently pending claims, is respectfully traversed.

To overcome this provisional rejection, Applicants have concurrently filed herewith a Terminal Disclaimer.

In view of the Terminal Disclaimer, Applicants respectfully submit that the provisional double patenting rejection is now moot and respectfully request reconsideration and withdrawal thereof.

Art Rejections

Claims 1, 6-11, 13, 16, and 21-23 are rejected under 35 U.S.C. § 102(e) as being anticipated by Terahara (USP 6,535,309). Claims 2-4, 12, 14, 15, 17-19, 24, and 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Terahara. Claims 5 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Terahara in view of Xiao (US Patent Publication No. US 2002/0101636

A1). These rejections, insofar as they pertain to the presently pending claims, are respectfully traversed.

Although Terahara appears to disclose an optical multiplexing/demultiplexing apparatus including add-light power control functionality, Terahara does not disclose or suggest the features as now recited in independent claims 1 and 16. Specifically, Terahara does not disclose or suggest a gain element imparting optical gain to at least one channel received from the add channel port wherein the gain element has a gain profile substantially matching a gain profile of the signal input to the add/drop module as recited in amended claim 1.

While Terahara does disclose an optical power regulating portion 26 that regulates the power of the add-light being added to the OADM circuit 10B, this optical power regulating portion 26 simply does not disclose or suggest having a gain profile a substantially matching a gain profile of the signal input to the add/drop module as now recited in amended claim 1. Indeed, Terahara is solely concerned with matching the power levels and has no concern, disclosure, suggestion or vague hint of matching gain profiles.

This gain profile is graphically illustrated in the present application, specifically Figs. 7-10. Fig. 7 illustrates a typical gain profile of a signal input to the OADM module 30. As can be

seen, the gain profile is a plot of gain or optical power versus wavelength. Such gain profiles typically result from upstream optical elements, usually an optical amplifier. Such optical amplifiers typically do not provide a flat gain profile but instead output an optical having a gain profile, for example, like that shown in Fig. 7.

The present invention not only solves the power matching problem but also extends to matching gain profiles. Fig. 8 illustrates the input signal after a channel drop has occurred. Fig. 9 shows the added channels before amplification. Fig. 10 shows a preferred embodiment of the invention wherein the added channels are amplified with a gain element having a gain profile substantially matching that of the gain profile of the input signal.

Thus, when the added channels are gain profile matched as well as power matched, the result is an output signal having a gain profile quite similar to the gain profile of the input signal. This is quite advantageous for a wavelength division multiplexed system. In other words, the add/drop multiplexer of the invention will appear power-transparent and insensitive to changes in the number of channels input, dropped, or added and/or changed in the respective power values of the input, dropped, and added channels.

In contrast, Fig. 11 illustrates the situation in which no gain profile matching is utilized. As can be seen there is a discontinuity in the gain profile which can cause problems downstream.

Applicants reemphasize that Terahara does not disclose or suggest any such gain profile matching.

In terms of method claim 16, Terahara also does not disclose or suggest the step of substantially matching a gain profile the add path with a gain profile to signal input to the add/drop module. Related arguments are above. Applicants emphasize that there is no method or apparatus in Terahara that discloses or suggests any such substantial matching of a gain profile as further recited in amended independent claim 16.

Furthermore, Xiao does not remedy any of the noted deficiencies in Terahara. Indeed, Xiao is merely applied to teach various other features of the invention. While Applicants also take issue with those other features, Applicants also wish to focus the patentability of the present invention upon the amended independent claims.

Examining Xiao in more detail, it is quite clear that Xiao utilizes a variable optical attenuator 418 to adjust the power of the added channels. This is best discussed on page 3, second column, paragraph 23.

As discussed in Xiao, the self-adjusting OADM merely performs power matching. There is no disclosure or suggestion of gain profile matching. Indeed, the variable optical attenuator 418 is not a gain element but instead an attenuating element. Even if the variable optical attenuator of Xiao could be considered a gain element, there is certainly no disclosure or suggestion of a gain element having a gain profile substantially matching a gain profile of the signal input to the add/drop module as recited in amended independent claim 1. Furthermore, there is no teaching or suggestion in Xiao of substantially matching a gain profile of the add path with a gain profile of the signal input to the add/drop module as recited in amended independent claim 16.

For all of the above reasons, taken alone or in combination, Applicants respectfully request reconsideration and withdrawal of the art rejections.

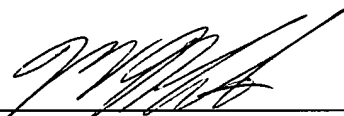
Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Michael R. Cammarata (Reg. No. 39,491) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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